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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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VIDAS, ARRETT & STEINKRAUS, P.A.
6109 BLUE CIRCLE DRIVE
SUITE 2000
MINNETONKA, MN 55343-9185

EXAMINER	
PICO, ERIC E	

ART UNIT	PAPER NUMBER
3654	

DATE MAILED: 11/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/822,547	MOLNAR ET AL.	
	Examiner	Art Unit	
	Eric Pico	3654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-24 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 12 April 2004 is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the gear box must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show clutch bearing 94 on Page 10, Line 31 as described in the specification. Any structural

detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "94" and "102" have both been used to designate clutch bearing. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet

submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claim 11 recites the limitation "said linear drive" in Page 2, Line 21. There is insufficient antecedent basis for this limitation in the claim.

6. Claims 4, 10, 11, 12, 13, 14, 18, and 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. **Regarding claim 4**, the statement "may be at least one of said threads" is indefinite. Claiming the possibility of at least one thread does not further limit the lift drive.

8. **Regarding claim 10**, it is indefinite how the motor's predetermined output speed and the preselected pitch of the spiral threads regard to the speed of rotation of the drive element and the tooth spacing to drive the carriage along the rack at a predetermined speed.

9. **Regarding claim 11**, it is indefinite what a reasonable factor of safety encompasses. Furthermore, it is also indefinite what element, be it the track teeth, the lift device, or the spiral drive threads the factor of safety pertains to. The claim is also unclear whether or not this safety factor was determined with a track tooth design load of 50 pounds stated on Page 7, Line 11-13.

10. **Regarding claim 12**, it is indefinite what element, be it the track teeth, the lift device, or the spiral drive threads the factor of safety pertains to. The claim is also unclear whether or not this safety factor was determined with a track tooth design load of 50 pounds stated on Page 7, Line 11-13.

11. **Regarding claim 13**, it is indefinite what materials have a low coefficient of friction due to the fact that it is the combination of materials that create a coefficient of friction. Furthermore, it is indefinite what encompasses a low coefficient of friction.

12. **Regarding claim 14**, it is indefinite what materials have a coefficient of friction between 0.03 and 0.18 due to the fact that it is the combination of materials that create a coefficient of friction.

13. **Regarding claim 18**, it is indefinite where the output and input were measured to determine the combined efficiency of the gear box and spiral drive was determined.

14. **Regarding claim 19**, it is indefinite where the output and input were measured to determine the efficiency of the worm drive element and the rack was determined.

Claim Rejections - 35 USC § 102

15. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

16. Claim(s) 1-5, 8-11, and 13 is/are rejected under 35 U.S.C. 102(b) as being anticipated by Blanchette et al. U.S. Patent No. 4051923.

17. **Regarding claim 1**, Blanchette et al. discloses a lift drive comprised of a spiral drive element 17 having an axis of rotation, a rack 1 having teeth sized and shaped to be engaged by said spiral drive element 17, and a motor (not shown but a part of drive units 3,4) to rotate the spiral drive element 17.

18. Blanchette et al. further discloses the rack 1 having a longitudinal axis parallel to the axis of rotation.

19. Blanchette et al. further discloses the during the rotation of the spiral drive element 17, one of the spiral drive element 17 and the rack 1 moves relative to the other along the longitudinal axis.

20. **Regarding claim 2**, Blanchette et al. further discloses said spiral drive element 17 moves and said rack 1 is stationary.

21. **Regarding claim 3**, Blanchette et al. further discloses said spiral drive element 17 includes between one and twelve generally spiral drive threads, each of said drive threads engaging at least one of said rack teeth, shown in figures 2 and 3.

22. **Regarding claim 4**, Blanchette et al. further discloses at least one of the threads engages at least two teeth at once, shown in figures 2 and 3.

23. **Regarding claim 5**, Blanchette et al. further discloses a moveable carriage 2, the motor (not shown but a part of drive units 3,4) and the spiral drive element 17 being mounted onto the carriage 2.

24. **Regarding claim 8**, Blanchette et al. further discloses the rack 1 includes teeth 5 that are spaced apart by a distance and the number of teeth 5 passed per revolution of the spiral drive element 17 is determined by the number of threads on the spiral drive element 17.

25. It is inherent with the following components the speed of the movement along the longitudinal axis is proportional to the number of spiral drive threads as well as the spacing of the teeth 5.

26. **Regarding claim 9**, Blanchette et al. further discloses the device further includes a gearbox (not numbered but a part of drive units 3,4 and shown in Figure 4) to operatively couple the motor to the spiral drive element 17, whereby the spiral drive element 17 is rotated at a speed suitable from producing an acceptable linear speed for the drive element along the track.

27. **Regarding claim 10**, Blanchette et al. further discloses the motor (not shown but a part of drive units 3,4) has a predetermined output speed, and the spiral threads of the spiral drive element 17 have a preselected pitch, having regard to the speed of rotation of the drive element 17 and the tooth 5 spacing to drive the carriage 2 along the rack 1 at a predetermined speed.

28. **Regarding claim 11**, Blanchette et al. further discloses a linear drive has a predetermined load capacity, and sufficient number of spiral drive threads are provided to permit enough teeth 5 to be simultaneously engaged to support the load capacity together with a reasonable factor of safety. It is inherent the claim is met due to the fact that an unreasonable factor of safety would yield a nonfunctioning apparatus.

29. **Regarding claim 13**, Blanchette et al. further discloses said spiral drive element and said teeth are selected from materials having a low coefficient of friction. It is inherent the claim is met due to the fact that a high coefficient of friction would yield a nonfunctioning apparatus.

Claim Rejections - 35 USC § 103

30. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim(s) 6, 7, 20, 21, and 24 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchette et al. U.S. Patent No. 4051923 in view of Lin U.S. Patent No. 6755283.

2. **Regarding claim 6**, Blanchette et al. discloses a carriage 2 and rack 1 but is silent concerning a plurality of wheels and the rack being fixed to a rail. Lin teaches a carriage 180 which includes a plurality of wheels 111 and a rack 130 fixed to a rail 150,

3. Lin further teaches the rail 150 including wheel guides 110 to guide the wheels 111 along the rail 150. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the carriage and rack disclosed by Blanchette et al. with a plurality of wheels and a rail to stabilize and balance the motion of the lift device.

4. **Regarding claim 7**, Blanchette et al. further discloses teeth 5 includes a thrust surface sized and shaped to engage at least one of spiral drive threads of the spiral drive element 17.

31. **Regarding claim 20**, Blanchette et al. discloses a drive device for lifting loads comprised of a moveable carriage 2, a motor (not shown but a part of drive units 3,4) carried by said carriage 2, the motor having an output shaft 18; a gearbox (not numbered but a part of drive units 3,4 and shown in Figure 4) attached to the output shaft 18 to reduce the speed of revolution transmitted by the motor (not shown but a part of drive units 3,4), such gearbox (not numbered but a part of drive units 3,4 and shown in Figure 4) being configured for maximum efficiency, a threaded spiral drive element 17 attached to and driven by an output shaft 18 of the gearbox (not numbered but a part of drive units 3,4 and shown in Figure 4); and a fixed rack 1 having teeth 5 sized and shaped to be engaged by the threaded spiral drive element 17,

32. Blanchette et al. further discloses when the motor (not shown but a part of drive units 3,4) being activated the spiral drive element 17 drives the carriage 2 longitudinally along the rack 1. Blanchette et al. is silent concerning a moveable carriage having wheels.

33. Lin teaches a drive device for lifting loads comprised of a moveable carriage 180 having wheels 111. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the carriage and rack disclosed by Blanchette et al. with a plurality of wheels and a rail to stabilize and balance the motion of the lift device.

34. **Regarding claim 21**, Blanchette et al. further discloses the fixed rack 1 and the threaded spiral drive element 17 are made from lightweight materials. It is inherent the claim is met due to the fact that a heave materials would yield a nonfunctioning apparatus.

35. **Regarding claim 24**, Blanchette et al. further discloses the spiral drive element 17includes more than one thread to simultaneously engage more than one tooth 5 of the rack 1 to distribute the load being lifted.

5. Claim(s) 12 and 14 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchette et al. U.S. Patent No. 4051923.

6. **Regarding claim 12**, Blanchette et al. discloses lift device but is silent concerning the lifting device having a factor of safety of at least 1.5. It would have been obvious to one of ordinary in the art at the time of the invention was made to create a lifting device with a factor of safety of at least 1.5, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

7. **Regarding claim 14**, Blanchette et al. discloses a spiral drive element 17 and teeth 5 but is silent concerning elements having a coefficient of friction is between 0.03 and 0.18. It would have been obvious to one of ordinary in the art at the time of the

invention was made to have a coefficient of friction between the spiral drive element and the teeth to be between 0.03 and 0.18, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

8. Claim(s) 15 and 16 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchette et al. U.S. Patent No. 4051923 as applied to claim 14 above, and further in view of Paterson et al. U.S. Patent No. 5803437.

9. **Regarding claim 15**, Blanchette et al. discloses spiral drive element 17 and teeth 5 but is silent concerning spiral drive element and teeth made from plastic. Paterson et al. teaches a spiral drive element and teeth made from plastic (Column 2, Lines 1-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the spiral drive element and teeth disclosed by Blanchette et al. from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus. Furthermore, it would have also been obvious to one of ordinary in the art at the time of the invention was made to manufacture the spiral drive element and teeth from plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

10. **Regarding claim 16**, Blanchette et al. further discloses a spiral drive thread but is silent concerning the spiral drive thread being made from oil impregnated plastic (Column 2, Lines 1-9). Paterson et al. further teaches a spiral drive thread being made from oil impregnated plastic. It would have been obvious to one of ordinary skill in the

art at the time of the invention to manufacture the spiral drive thread disclosed by Blanchette et al. from oil impregnated plastic taught by Paterson et al. to provide a self lubricating surface and reduce friction. Furthermore, it would have also been obvious to one of ordinary in the art at the time of the invention was made to manufacture the spiral drive thread from oil impregnated plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

11. **Regarding claim 22**, Blanchette et al. further discloses a fixed rack 1 and threaded spiral drive element 17 but is silent concerning fixed rack and threaded spiral drive element made from plastic. Paterson et al. further teaches a fixed rack and threaded spiral drive element made from plastic (Column 2, Lines 1-9). It would have been obvious to one of ordinary skill in the art at the time of the invention to manufacture the fixed rack 1 and threaded spiral drive element 17 disclosed by Blanchette et al. from plastic taught by Paterson et al. to provide a lightweight lift device to reduce the amount of power needed to operate the apparatus. Furthermore, it would have also been obvious to one of ordinary in the art at the time of the invention was made to manufacture the fixed rack and the threaded spiral drive element from plastic, since it has been held to be within the general skill to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

12. **Regarding claim 23**, Blanchette et al. further discloses least one thread of said threaded spiral drive element 17 is sized and shaped to engage more than one tooth 5 of the rack 1 to distribute the load being lifted.

13. Claim(s) 17 is/are rejected under 35 U.S.C. 103(a) as being unpatentable over Blanchette et al. U.S. Patent No. 4051923 in view of Paterson et al. U.S. Patent No. 5803437 as applied to claim 16 above, and further in view of Strong et al. U.S. Patent No. 6616567.

14. **Regarding claim 17**, Blanchette et al. discloses a gear box between the motor and the spiral drive element 17 but is silent concerning the gear box providing a speed reduction of between about 8 to 1 and 60 to 1. Strong et al. teaches a gear box 10 providing a speed reduction of between about 8 to 1 and 60 to 1. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the gear box taught by Strong et al. to the motor and spiral drive element disclosed by Blanchette et al. to provide speeds according to the conditions.

15. **Regarding claim 18**, Blanchette et al. further discloses a gear box and a spiral drive but is silent concerning the gear box and spiral drive having a combined efficiency of between 35% to 88%. It would have been obvious to one of ordinary in the art at the time of the invention was made to provide the gear box and spiral drive with a combined efficiency of between 35% to 88%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

16. **Regarding claim 19**, Blanchette et al. further discloses a worm drive element 17 and a rack 1 but is silent concerning the worm drive element and the rack have an efficiency of between 70% and 86%. It would have been obvious to one of ordinary in the art at the time of the invention was made to provide the worm drive element and the rack with an efficiency of between 70% and 86%, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Dennis U.S. Patent No. 531625, Hoffmann U.S. Patent No. 647491, Bjorkstrom U.S. Patent No. 1113744, Ouillett U.S. Patent No. 1392078, Yabe et al. U.S. Patent No. 6023991.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Pico whose telephone number is 571-272-5589. The examiner can normally be reached on 6:30AM - 3:00PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Katherine Matecki can be reached on 571-272-6951. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

EEP

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